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## What we know about H5N1 (the bird flu) virus and ...

# People, Pets, Songbirds

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### People?

We know that most people in Asia who have become infected with H5N1 (the bird flu virus) have been exposed while slaughtering, de-feathering, and butchering sick or dead domestic poultry.

Only one outbreak of human H5N1 disease (in Azerbaijan) has involved wild birds as the most likely source of infection for humans. Following an outbreak of H5N1 in wild swans, humans who plucked the feathers from dead swans (for pillows) were likely exposed to the virus while collecting feathers. Of seven people who became ill, four later died.

Scientists suspect there may be a genetic susceptibility to H5N1 virus in some people. "It is....likely that a high dose of virus may be needed to initiate an infection and that a readily accessible entry route for the virus does not exist...Studies on the exact route(s) of H5N1 virus entry in mammals are needed and may provide useful information for the human infection" (EFSA Journal, 2006).

A few human cases have involved family members that have become infected while caring for an H5N1-infected relative. These family members were not wearing any personnel protective equipment such as a face mask or gloves.

In two cases, consumption of a pudding containing raw duck blood is believed to have resulted in infection with H5N1. With the exception of these two cases, there is no

direct evidence to suggest that the food chain is a route of transmission for avian influenza virus in humans. However, there is mounting circumstantial evidence of infection via ingestion in some non-human mammalian species so this mode of transmission cannot be ruled out. Follow the food preparation recommendations on the next page: Notice that these are the same food preparation recommendations you use to prevent exposure to germs such as Salmonella.

### Pets?

Experimental or natural H5N1 virus has been identified in cats, dogs, ferrets, rats, mice, and rabbits (and also in pigs, weasels, seals, otters, badgers, and macaques, but these are not usually pets!).

Natural infections in pets probably occur when they eat infected birds. We have only limited or, in some cases, no information about the biological behavior of H5N1 virus in most of these species.

Natural H5N1 infection and disease has been reported in house cats and large zoo cats (tigers and leopards) in several Asian or Middle Eastern countries. "Death in cats, spatially and temporally associated with unusual deaths in poultry, especially when the cats show positive results of a rapid antigen detection test for influenza A, should be considered to indicate a presumptive diagnosis of HPAI, and [an] appropriate response should ensue" (Yingst 2006).

### **FOOD preparation recommendations**

- Separate raw meat from cooked foods.
- Do not use the same chopping block or utensils for raw meat and other foods.
- Do not put cooked meat back on the raw meat platter.
- Wash your hands with soap and hot water after handling raw meat.
- H5N1 is killed by fully cooking poultry meat and eggs (at 165 degrees Fahrenheit or higher).

In experimental cases, house cats fed H5N1-infected dead birds have developed H5N1 infection and pneumonia. Healthy, uninfected cats developed H5N1-related pneumonia when housed with sick cats that were shedding H5N1 virus in their feces and cough droplets. This means it is possible for H5N1-infected cats to infect healthy cats in the same household. (See box below for more information.)

“To date, no human case [of H5N1] has been linked to exposure to a diseased cat. Nevertheless, in view of the susceptibility of certain individuals of this species, it is recommended that cats in [areas with cases of H5N1 virus]... be kept indoors” (World Health Organization, Feb. 28, 2006).

### **CATS: There is much we do not yet know, so observe these precautions**

- Keep routine vaccinations up-to-date for all cats, including “barn cats.”
- Limit contact with outdoor cats (both feral cats and barn cats) until we know more about H5N1.
- Cook poultry products before feeding to pets (i.e. chicken and rice diet).
- Do not pick up or adopt stray cats and take them home. If you really want that animal, take it to your veterinarian immediately.
- Take any sick cat to your veterinarian.

Remember that kittens especially can have a variety of “colds” that result in weepy eyes, a runny nose, and/or coughing and sneezing caused by germs other than H5N1. Your veterinarian can test for a variety of disease agents.

There have been no confirmed reports of H5N1-associated illness in dogs. Dogs do, however, develop antibodies to H5N1 so we know their immune system can “recognize” the virus. Because there is much we do not yet know about H5N1 infection in dogs, the following recommendations should be observed:

### **DOGS: There is much we do not yet know, so observe these precautions**

- Keep routine vaccinations up-to-date for all dogs.
- Do not allow dogs to eat feces, dead animals, or roll in unidentified substances.
- Cook poultry products before feeding to pets (chicken and rice diet).
- Do not pick up or adopt stray dogs and take them home. If you really want that animal, take it to your veterinarian first.
- Take any ill dog to your veterinarian.

An equine strain of influenza virus (H3N8) was first reported in racing greyhounds in Florida in 2004. While this strain of influenza is still considered rare and is not related to the H5N1 avian strain of influenza, the equine strain is “new” to dogs. Dogs have no natural immunity to H3N8, and no vaccine is available for this virus. Up to 80% of dogs infected are likely to have flu-like illness for a few days, and 5 to 8% of dogs infected with the equine strain may die. Should your veterinarian identify influenza virus in your dog, further testing will be done to determine if it is an equine or avian strain.

There is no evidence that either the equine H3N8 or the avian H5N1 strains of influenza can be passed from dogs to humans.

Legally imported pet birds are quarantined for 30 days and tested for diseases such as avian influenza before they are allowed to enter the U.S. Therefore, pet birds purchased from a reputable pet store or dealer are unlikely to be infected with avian influenza.

To keep your pet birds from being exposed to avian influenza, don't house pet birds outside. (In summer this will also protect them from mosquito-borne West Nile virus, another virus that can be fatal to some birds.)

Do not keep or raise pet birds in the home if you also raise back yard / free-range flocks of domestic poultry.

## Wild birds, songbirds?

Over 90 species of wild, captive, and pet birds have been naturally or experimentally infected with H5N1 avian influenza virus. A complete listing may be found at: [http://www.nwhc.usgs.gov/disease\\_information/avian\\_influenza/affected\\_species\\_chart.jsp](http://www.nwhc.usgs.gov/disease_information/avian_influenza/affected_species_chart.jsp)

During the fall of 2006 and spring of 2007, a nationwide collaboration among the USDA, the U.S. Fish & Wildlife Service, and state wildlife agencies is testing approximately 100,000 wild birds for evidence of avian influenza viruses, including H5N1. Authorities expect to detect 50 to 100 cases of H5N1 in wild birds in the U.S. this year, mostly in waterfowl. The results of these surveillance activities may be found at <http://wildlifedisease.nh.gov/ai>

We know that waterfowl such as ducks and geese can be subclinical carriers that show no signs of disease. “The potential role of wild birds and waterfowl as reservoirs of infection by high path avian influenza viruses has been described for only the Asian HPAI [Highly Pathogenic Avian Influenza] virus H5N1. The ecologic and epidemiologic implications of this unprecedented situation are not predictable” (Capua 2006). In other words, there is much we do not yet know about H5N1 and wild birds.

In the spring of 2006, the most commonly affected wild birds in the United Kingdom were, in decreasing order of incidence, swans>ducks>geese>birds of prey (such as hawks and owls). H5N1 has also been documented in passerine (“perching”) birds such as the house sparrow, Eurasian tree sparrow, and the house finch.

Questions that scientists hope to answer from the surveillance data include:

- Which wild birds will become infected with the highly pathogenic H5N1 avian influenza virus?
- If infected with H5N1, will the birds die or will they survive?
- If they do survive, will the birds be healthy enough to migrate, and how many days will they shed the virus (in feces and respiratory secretions) while on the move?

Until we know more about H5N1, do not swim in lakes or ponds used by wild birds. Don't feed pond or lake ducks or geese. Try not to walk in areas heavily contaminated with bird feces.

Incidental contact with goose or duck feces “is probably a minimal health risk [for exposure to H5N1],” according to Larry Clark, Assistant Director of the National Wildlife Research Center. However, if you walk through areas with bird droppings you should leave your shoes outside and avoid touching your eyes, nose, or mouth until you can wash your hands thoroughly with hot water and soap.

H5N1 has been documented in perching birds such as the house sparrow, Eurasian tree sparrow, and the house finch. If you have feeders and/or bird baths in your yard we recommend the following precautions:

### **BACKYARD BIRDS: Observe these precautions**

- Do not eat, drink, or smoke while handling feeders or bird baths.
- Consider using “outdoor” shoes (i.e. plastic gardening shoes) when walking in areas likely to be contaminated with bird feces. Leave these shoes outside when not in use.
- Wash hands thoroughly with soap and water after handling feeders and bird baths and after taking off your “outdoor” shoes.

If you find one or two dead birds in your yard, they can be buried. Use a shovel and do not touch the bird. Or double-bag the bird, using disposable gloves. Or insert your hand into an inverted trash bag, and bring the bag down around the bird.

Discard in a trash receptacle that pets, scavenging wild animals, and children cannot open.

If multiple birds are found ill or dead at a single location contact the South Dakota Game Fish and Parks at 605-773-3485.

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